CLAIMS

1. An internal combustion engine with a plurality of cylinders,
   - at least one valve (11) at each cylinder being adapted to be actuated by a valve actuation arrangement (12),
   - the valve actuation arrangement (12) comprising at least two actuation adjustment mechanisms (17), each adapted to assume a first position whereby at least one of the valves can be actuated according to a first valve lift mode, and to assume a second position whereby at least one of the valves can be actuated according to a second valve lift mode,
   - the position of at least one actuation adjustment mechanism (17) for at least one valve (11) at a first set of cylinders being controllable through a first mechanism control system (22), characterized in that
   - the position of at least one actuation adjustment mechanism (17) for at least one valve (11) at a second set of cylinders is controllable through a second mechanism control system (23),
   - whereby the first set of cylinders consists of cylinders which are consecutive in a firing sequence, during operation of the engine according to at least one engine operation mode.

2. An internal combustion engine according to claim 1, whereby the cylinders are arranged essentially along at least one line, whereby, at least one of the lines, at least one cylinder of the second set of cylinders is positioned between two cylinders of the first set of cylinders.

3. An internal combustion engine according to claim 2, whereby, at least at said line in which at least one cylinder of the second set of cylinders is positioned between two cylinders of the first set of cylinders, at least one cylinder of the first set of cylinders is positioned between two cylinders of the second set of cylinders.

4. An internal combustion engine according to any of the preceding claims, whereby one actuation adjustment mechanism (17) is provided for each valve (11) that can be actuated according to a first or a second valve lift mode.

5. An internal combustion engine according to any of the preceding claims, comprising six cylinders arranged essentially along a straight line.

6. An internal combustion engine according to any of the preceding claims, whereby the actuation adjustment mechanism (17) includes a locking device, and the first and the second position correspond to an unlocked and a locked position, respectively, of the locking device.

7. An internal combustion engine according to claim 6, whereby the valve actuation arrangement (12) comprises a main part (16a) and an additional part (16b), whereby, in the unlocked position of the actuation adjustment mechanism (17), the additional part (16b) is movable in relation to the main part (16a), whereby the at least one valve (11) can be actuated by a first cam lobe (14) via the main part (16a), and whereby, in the locked position of the actuation adjustment mechanism (17), the additional part (16b) is secured to the main part (16a), whereby the at least one valve (11) can be actuated by a second cam lobe (15) via the additional part (16b).